

CLAIMS:

1. DC-DC-converter of the type isolated boost converter comprising
 - input terminals for connection to a DC power source,
 - a first circuit branch connecting the input terminals and comprising a series arrangement of an inductive element L and switching means,
 - 5 – a control circuit coupled to the switching means for generating a control signal for controlling the conductive state of the switching means,
 - a transformer equipped with
 - a primary winding coupled to the switching means,
 - a secondary winding magnetically coupled to the primary winding,
 - 10 – rectifying means coupled to the secondary winding, and
 - output terminals coupled to the rectifying means,

characterized in that the control signal has a constant period T and in that the converter is further equipped with a current control loop for controlling average value over a period of the control signal of the current through the inductive element L at a constant level.
- 15 2. DC-DC-converter as claimed in claim 1, wherein the DC-DC-converter comprises
 - a first circuit part for generating a first signal that represents the momentary amplitude of the current through the inductive element L,
 - 20 – a second circuit part for generating a second signal that represents a predetermined reference value, and
 - a comparator equipped with
 - a first input terminal coupled to the first circuit part,
 - a second input terminal coupled to the second circuit part, and
 - 25 – an output terminal coupled to the control circuit.
3. DC-DC-converter as claimed in claim 1, wherein the control loop is equipped with

- a first circuit part for generating a first signal that represents the average value of the current through the inductive element L,
 - a second circuit part for generating a second signal that represents a desired value of the average value of the current through the inductive element L, and
 - 5 – a third circuit part coupled with the first circuit part, the second circuit part and the control circuit for comparing the first signal and the second signal and for adjusting the duty cycle of the control signal in dependency of the difference between the first and the second signal.
- 10 4. DC-DC-converter according to claim 1, 2 or 3, wherein the switching means comprises a first series arrangement of a first switching element and a second switching element, and a second series arrangement shunting the first series arrangement and comprising a third switching element and a fourth switching element, and wherein the primary winding is coupled between a common terminal of the first and the second switching
- 15 element and a common terminal of the third and the fourth switching element.
5. DC-DC-converter according to claim 4, wherein the control circuit effects a switching cycle comprising
- a first operational state during a first time interval in which energy is transferred from the
 - 20 DC power source to the inductive element L,
 - a second operational state during a second time interval in which energy is transferred from the DC power source and from the inductive element L to the output terminals by means of a current flowing through the primary winding in a first direction,
 - a third operational state during a third time interval in which energy is transferred from
 - 25 the DC power source to the inductive element L,
 - a fourth operational state during a fourth time interval in which energy is transferred from the DC power source and from the inductive element L to the output terminals by means of a current flowing through the primary winding in a second direction,
- and wherein the time duration of the first and the second time interval together is equal to a
- 30 constant predetermined value and also equal to the time duration of the third and fourth time interval together.
6. DC-DC-converter as claimed in one or more of the previous claims, wherein the rectifying means is equipped with a first series arrangement comprising two diodes and

shunting the secondary winding and a second series arrangement comprising two further diodes and shunting the secondary winding.

7. Solar power converter comprising a DC-DC-converter as claimed in claims 1-

5 6.

8. Solar power converter as claimed in claim 7, comprising an inverter coupled to the output terminals of the DC-DC-converter for generating a low frequency AC voltage out of the DC voltage present between the output terminals.

10

9. Solar power system comprising a solar panel equipped with photovoltaic cells and a solar power converter as claimed in claim 7 or 8.